

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER D-133-14
Relating to Exemptions under Section 27156
of the Vehicle Code

REDLINE, INC., A SUBSIDIARY OF IMPAC
REDLINE CARBURETOR CONVERSION KIT NO. #K8622
USING ONE WEBER MODEL 32/32 DGAV 5E CARBURETOR

Pursuant to the authority vested in the Air Resources Board by Section 27156 of the Vehicle Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-45-5;

IT IS ORDERED AND RESOLVED: That the installation of the Redline Carburetor Conversion Kit No. K8622 manufactured by Redline, Inc. has been found not to reduce the effectiveness of required motor vehicle pollution control devices and, therefore, is exempt from the prohibitions of Section 27156 of the Vehicle Code for the vehicles listed below:

<u>Year(s)</u>	<u>Make</u>	<u>Vehicle Model or Engine Type</u>	<u>Redline Kit No.</u>	<u>Weber Carb. Model No.</u>
1970-1974	Datsun	1200 and B210	K8622	32/32 DGAV 5E

The following modifications to the exhaust emission control system are permitted:

- (1) The Throttle Positioner or Dashpot, on vehicles so equipped, may be disconnected and removed.
- (2) The Altitude Corrector, on vehicles so equipped, may be disconnected and removed.
- (3) The Vacuum Hose Routing may be changed as specified in the kit installation instructions.

All other original equipment emission control devices must be retained. The vehicles must be tuned to the vehicle manufacturer's specifications.

Changes made to the design or operating conditions of the conversion kits, as exempted by the Air Resources Board, that adversely affect the performance of a vehicle's pollution control system shall invalidate this Executive Order.

Marketing of these conversion kits using an identification other than that shown in this Executive Order or marketing of this device for an application other than those listed in this Executive Order shall be prohibited unless prior approval is obtained from the Air Resources Board. Exemption of a conversion kit shall not be construed as an exemption to sell, offer for sale, or advertise any component of a conversion kit as an individual device.

This Executive Order does not constitute any opinion as to the effect that the use of these conversion kits may have on any warranty either expressed or implied by the vehicle manufacturer.

THIS EXECUTIVE ORDER DOES NOT CONSTITUTE A CERTIFICATION, ACCREDITATION, APPROVAL, OR ANY OTHER TYPE OF ENDORSEMENT BY THE AIR RESOURCES BOARD OF ANY CLAIMS OF THE APPLICANT CONCERNING ANTI-POLLUTION BENEFITS OR ANY ALLEGED BENEFITS OF THE REDLINE, INC. CARBURETOR CONVERSION KIT NO. K8622.

No claim of any kind, such as "Approved by Air Resources Board" may be made with respect to the action taken herein in any advertising or other oral or written communication.

Section 17500 of the Business and Professions Code makes untrue or misleading advertising unlawful, and Section 17534 makes violation punishable as a misdemeanor.

Section 43644 of the Health and Safety Code provides as follows:

"43644. (a) No person shall install, sell, offer for sale, or advertise, or, except in an application to the state board for certification of a device, represent, any device as a motor vehicle pollution control device for use on any used motor vehicle unless that device has been certified by the state board. No person shall sell, offer for sale, advertise, or represent any motor vehicle pollution control device as a certified device which, in fact, is not a certified device. Any violation of this subdivision is a misdemeanor."

Any apparent violation of the conditions of this Executive Order will be submitted to the Attorney General of California for such action as he deems advisable.

Executed at El Monte, California, this 29th day of December, 1986.



K. D. Drachand, Chief
Mobile Source Division

State of California
AIR RESOURCES BOARD

EVALUATION OF THE REDLINE CARBURETOR CONVERSION KIT
NO. K8622 FOR EXEMPTION FROM THE
PROHIBITIONS OF VEHICLE CODE SECTION 27156
IN ACCORDANCE WITH SECTION 2222, TITLE 13
OF THE CALIFORNIA ADMINISTRATIVE CODE

DECEMBER, 1986

EVALUATION OF THE REDLINE CARBURETOR CONVERSION
KIT NO. K8622 FOR EXEMPTION
FROM THE PROHIBITIONS OF VEHICLE CODE SECTION 27156
IN ACCORDANCE WITH SECTION 2222, TITLE 13
OF THE CALIFORNIA ADMINISTRATIVE CODE

by

Mobile Source Division
State of California
AIR RESOURCES BOARD
9528 Telstar Avenue
El Monte, CA 91731

(This report has been reviewed by the staff of the California Air Resources Board and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of the Air Resources Board, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.)

SUMMARY

Redline, Inc., a distributor of Italian made Weber carburetors, has applied for exemption from the prohibitions of Vehicle Code Section 27156 for the Redline Carburetor Conversion Kit No. K8622 using one (1) Weber model 32/32 DGAV 5E carburetor.

This Redline Carburetor Conversion Kit is designed to replace the Hitachi carburetors found on 1970-1974 Datsun 1200 and B210 model vehicles.

Comparisons of the OEM Hitachi carburetor to the Weber carburetor, with respect to calibration, vacuum port signals and choke operation demonstrate that the Weber carburetor functions similarly but not identically to the Hitachi carburetor. Therefore, the Weber 32/32 DGAV 5E carburetor cannot be classified as a replacement part for the 1970-1974 Datsun 1200 and B210 model vehicles and must receive an exemption to be legally marketed in California.

Based on the submitted comparisons and an engineering evaluation, the staff concludes that the installation of the Redline Kit No. K8622 will not have an adverse emissions effect and recommends that an exemption be granted for the following vehicle applications:

<u>Year(s)</u>	<u>Make</u>	<u>Vehicle Model or Engine Type</u>	<u>Redline Kit No.</u>	<u>Weber Carb. Model No.</u>
1970-1974	Datsun	1200 and B210	K8622	32/32 DGAV 5E

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EVALUATION OF THE REDLINE CARBURETOR CONVERSION KIT NO. K8622 FOR EXEMPTION FROM THE PROHIBITIONS OF VEHICLE CODE SECTION 27156 IN ACCORDANCE WITH SECTION 2222, TITLE 13 OF THE CALIFORNIA ADMINISTRATIVE CODE

I. INTRODUCTION

Redline, Inc., of Compton, California, a subsidiary of Imported Parts and Accessories Corporation (IMPAC), is a distributor of Italian made Weber carburetors. The company has applied for exemption from the prohibitions of Vehicle Code Section 27156 for a Carburetor Conversion Kit designated as Redline Kit No. K8622 using a Weber carburetor to replace the original equipment manufacturer (OEM) Hitachi two-barrel carburetors found on the following vehicles:

<u>Year(s)</u>	<u>Make</u>	<u>Vehicle Model or Engine Type</u>	<u>Redline Kit No.</u>	<u>Weber Carb. Model No.</u>
1970-1974	Datsun	1200 and B210	K8622	32/32 DGAV 5E

This report describes the evaluation of the Redline Carburetor Conversion Kit and the findings.

II. CONCLUSION

Based on the submitted comparisons, and an engineering evaluation, the staff concludes that the installation of the Redline Kit No. K8622 will not have an adverse emissions effect on the vehicles described above.

III. RECOMMENDATION

The staff recommends that this exemption be granted on an engineering evaluation and that Executive Order D-133-14 be issued.

IV. DEVICE DESCRIPTION

The Redline Carburetor Conversion Kit No. K8622 uses one (1) model 32/32 DGAV 5E Weber carburetor as an economical replacement for the OEM carburetors found on the 1970-1974 Datsun vehicles described previously.

These Datsun vehicles are equipped with a Hitachi carburetor. These Hitachi carburetors are of the progressive two-barrel design (See Appendix 1).

The Weber 32/32 DGAV 5E is a progressive two-barrel carburetor which is similar in basic design to the OEM carburetors (See Appendix 2). It has provisions for vacuum operated emission control systems, including distributor vacuum advance/retard units, EGR and air injection control systems.

A variety of emission control devices are used on these vehicles. Some are integral to the OEM carburetor and others are external devices which either control specific functions of the OEM carburetor or are activated by movement of the throttle. The installation of the Weber carburetor retains most of these devices or duplicates the functions of the devices in a different manner, however, some devices cannot be retained. These devices and their disposition after the installation of the Weber carburetor are:

- 1) The Throttle Positioner or Dashpot, on vehicles so equipped, is disconnected and removed.
- 2) The Altitude Corrector, on vehicles so equipped, is disconnected and removed.
- 3) The Vacuum Hose Routing is changed as specified in the kit installation instructions.

All other original equipment emission control devices are retained. The installation instructions recommend that the vehicles must be tuned to the vehicle manufacturer's specifications.

The Redline Kits come complete with a Weber carburetor, an air cleaner adaptor, all the hoses, gaskets and hardware necessary to install the Weber carburetor on the Datsun vehicles. Installation instructions, which are included in every kit, show the kit installer how to properly install the Weber carburetor (see Appendix 3). A sample identification label is shown in Appendix 4. The Weber carburetor calibrations are included in Appendix 5.

V. DEVICE EVALUATION

The evaluation of the Redline kit no. K8622 consisted of an analysis of the submitted data, a study of the emission control systems used on the 1970-1974 Datsun 1200 and B210 model vehicles and emissions tests performed on a 1981 Datsun 210 station wagon.

Redline submitted an emissions system evaluation which shows which OEM systems can be reconnected to the Weber carburetor and function nearly the same and which systems must be disconnected. To demonstrate the Weber carburetor was compatible with the vacuum actuated emission control devices used on the Datsun vehicles, Redline submitted carburetor flow bench data which compares the vacuum signal strength between the OEM Hitachi and the Weber for the vacuum advance diaphragm and the EGR valve (see Appendix 6). Graph A-6.1 shows the dry flow bench depression of the OEM Hitachi carburetor for a 1974 Datsun B210 (Hitachi) and the Weber 32/32 DGAV 5E (Weber) versus the throttle opening in degrees. This shows the effect of the larger throttle plate diameter of the Weber which allows the same flow bench depression with less throttle opening. This difference means that the Weber throttle must be opened less to achieve the same power levels, during normal driving, or a FTP driving cycle this would not have an emissions effect. Graph A-6.2 shows the vacuum signal strength versus spark advance in crankshaft degrees. From this it can be seen that the only area of interest on Graph A-6.3 is between 10.5 and 22.5 cm. Hg. On the left end of graph A-6.3 (throttle openings below 10°) the two carburetors produce nearly the same spark advance signal. At the right end of the same graph (throttle openings above 50°) the Weber signal drops off sooner than the Hitachi but, at nearly the same rate. The effect of this should retard the spark advance slightly as compared to the stock spark

advance at the same throttle setting and should theoretically slightly reduce emissions. Any differences in the two vacuum signal strength curves outside of the area of interest are irrelevant.

Graph A-6.4 shows the vacuum signal strength versus EGR valve opening. From this it can be seen that the only area of interest on Graph A-6.5 is between 6 and 10.5 cm. Hg. The Weber signal comes on about 10° later than the Hitachi. This should slightly improve drivability while having a minimal effect on emissions. Any differences in the two vacuum signal strength curves outside of the area of interest are irrelevant. Also submitted was a comparison of the automatic choke operation between the two carburetors which shows that they function nearly the same.

A study of the emission control systems shows that the 1970-1973 Datsun 1200 vehicles have only one emission control component which is not compatible with the Weber carburetor. It is the throttle positioner, a device used to open the throttle plate slightly to control hydrocarbon emissions during deceleration. On these Datsun vehicles an altitude corrector is used in the throttle positioner system. Since the throttle positioner is removed, this altitude corrector serves no function and is also removed.

Redline has previously demonstrated that the Weber DGAV series carburetors do not need an external device to control hydrocarbons on deceleration by performing emissions tests used for the evaluation of other Redline kits which required the removal of a similar throttle positioner device (see staff reports accompanying E.O. No's. D-133-6, D-133-7, D-133-10A, D-133-10B, D-133-12 and D-133-13).

The 1974 B210 models utilize the same throttle positioner system and in addition, a dashpot on the automatic transmission models. The purpose of the

dashpot is to prevent the engine from stalling during hard braking with the transmission in gear. Stalling does not occur with the Weber carburetor on these models therefore the device is removed.

Emissions test performed on a 1981 Datsun 210 station wagon demonstrated that the installation of the Weber DGAV carburetor and the disconnections associated with it (which include more items than disconnected on the 1970-1974 vehicles) does not have an adverse emissions effect. For details of this evaluation and the actual test results please refer to the August, 1986, staff report entitled "EVALUATION OF THE REDLINE CARBURETOR CONVERSION KIT NO. K8625 FOR EXEMPTION FROM THE PROHIBITIONS OF VEHICLE CODE SECTION 27156 IN ACCORDANCE WITH SECTION 2222, TITLE 13 OF THE CALIFORNIA ADMINISTRATIVE CODE."

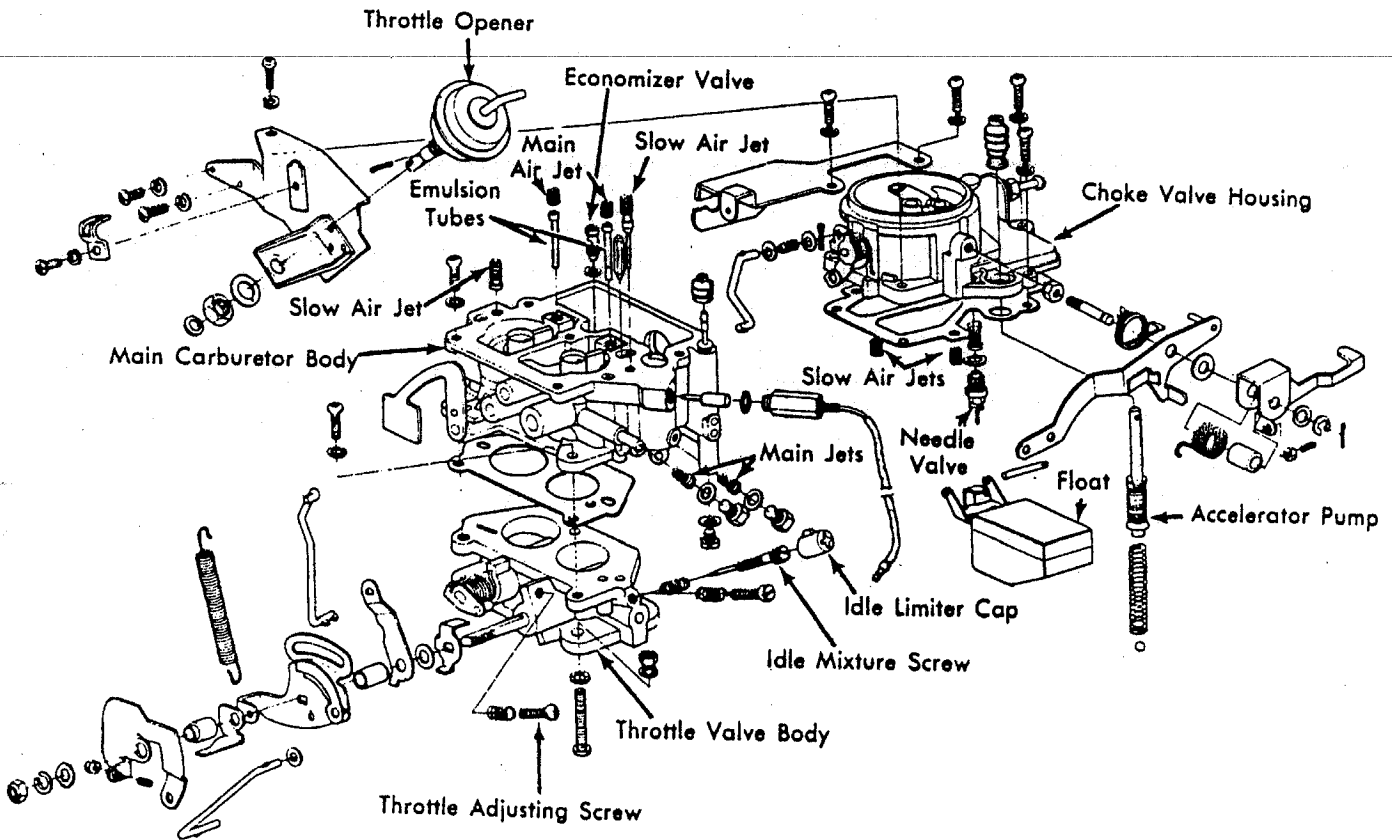
VI. DISCUSSION

The staff evaluation of the Redline carburetor conversion kit K8622 revealed the following:

1. The Weber carburetor vacuum signal strength curve for vacuum advance and EGR are nearly the same as OEM.
2. It has been previously demonstrated that the disconnection of the throttle positioner when the Weber carburetor is installed does not cause an adverse emissions effect.
3. The emissions tests performed on a 1981 Datsun 210 station wagon showed no significant increase in emissions with the Weber carburetor installed.
4. The vehicles for which this carburetor kit is applicable to are at least 13 years old.

Based on the above points the staff has determined that the Redline K8622 kit cannot be classified as a replacement part but should be granted an exemption based on this engineering evaluation which has determined that the Weber carburetor will function nearly the same as OEM and therefore will not have an adverse effect on emissions.

The staff recommends that an exemption be granted and that Executive Order D-133-14 be issued.



3HO08

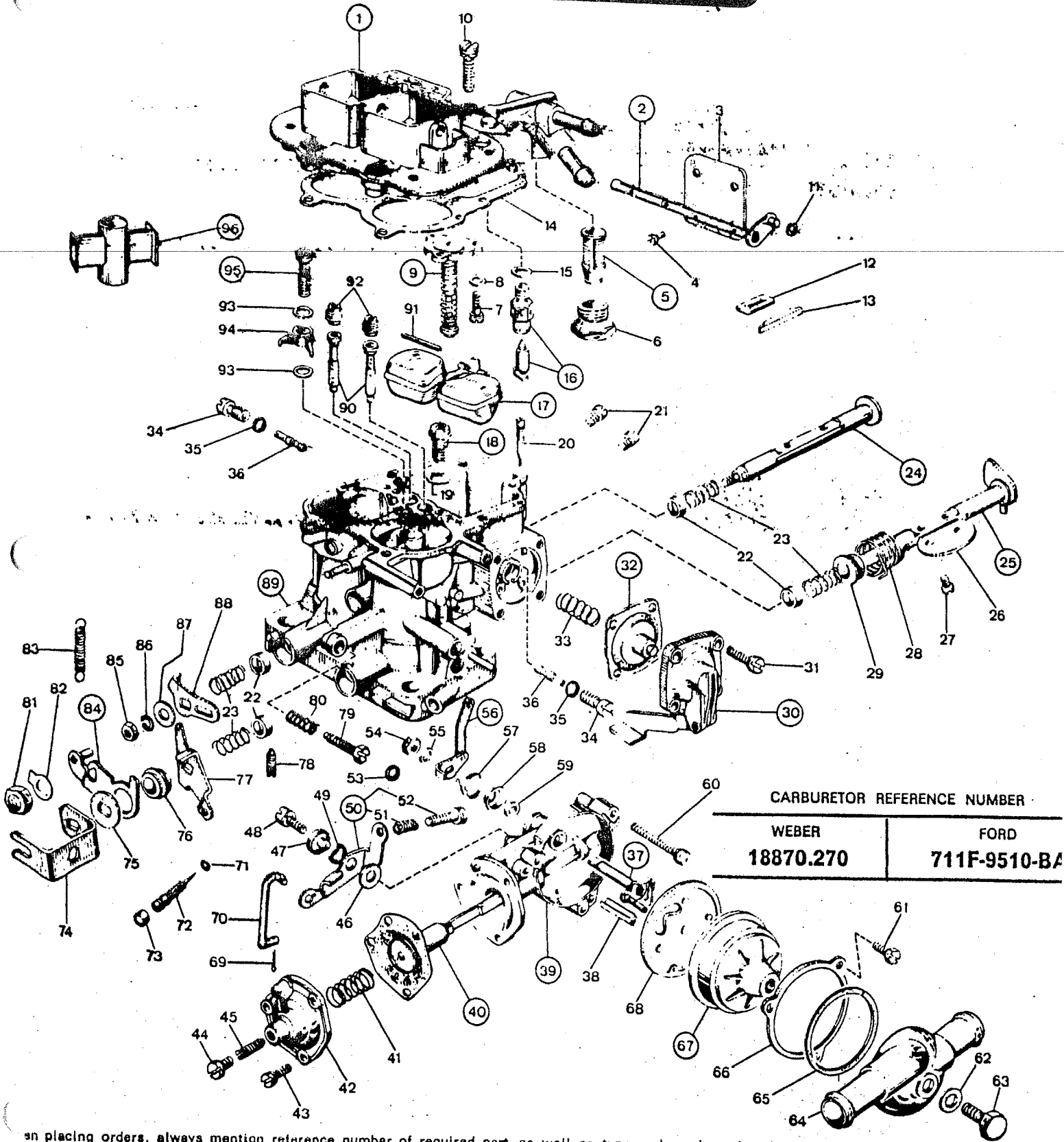
**CARBURETOR EXPLODED VIEW
(TYPICAL)**

WEBER CARBURETORS

Type: 32 DGAV 5 E

A-2

Standard Equipment on
FORD ESCORT
 1600 G.T.
 Manual Transmission



CARBURETOR REFERENCE NUMBER

WEBER	FORD
18870.270	711F-9510-BA

When placing orders, always mention reference number of required part, as well as type and number of carburetor.

K8622 INSTRUCTIONS 1ST DRAFT

1. Remove the vehicle's gas cap.
2. Disconnect the battery.

3. Remove the air filter assembly and attached components. Use the under hood emissions diagram, or a factory service manual to identify hoses for proper reassembly.
4. Identify all vacuum hoses connected to the carburetor by using the under hood emissions diagram or a factory service manual. Tag each hose with the proper identification and remove them from the carburetor.
5. Disconnect the stock fuel line from the carburetor. Plug the end of the fuel line to prevent leakage.
6. Identify all electrical wires and tag each wire for proper reassembly later. Disconnect the electrical wires from the carburetor.
7. Disconnect the throttle cable at the carburetor bracket and lever. Remove the clip and pin from the idle kick-up lever. (if equipped)
8. Remove the carburetor mounting nuts and carefully remove the carburetor and attached components from the intake manifold. Remove the flange gaskets and heat spacer. Insert a clean rag in the intake manifold ports.

9. Remove the stock carburetor mounting studs from the intake manifold. **NOTE:** For correct stud removal or installation, use a stud removal/installation tool; or the **DOUBLE NUT METHOD**. **DOUBLE NUT METHOD:** Install two nuts approximately 1/4 way down the stud. Lock the nuts together. Using the correct size wrench turn the lower nut for removal and the upper nut for installation.
10. Clean the carburetor mounting surface thoroughly.
11. **'74 B210 ONLY: B110 PROCEED TO STEP #15**
Remove the two EGR Valve mounting nuts and lockwashers. Carefully remove the EGR Valve from the intake manifold.
CAUTION: Some vehicles may require the water temperature switch to be temporarily disconnected to clear the EGR Valve for removal. (FIG.A)
12. Insert a rag in the EGR ports and thoroughly clean the mounting surface of all old gasket material.
13. Remove the rag from the EGR ports and install one of the EGR gaskets from the kit.
NOTE: A light coat of gasket sealer should be used on both sides of the gasket to ensure against exhaust leaks.
14. Install the EGR Valve adapter from the kit as shown in FIG. B. Use the original EGR Valve lockwashers and nuts to secure the adapter in place.

15. Remove the rag from the intake manifold ports and install the gaskets and adapter from the kit as shown in FIG.C. **NOTE;**The adapter studs should be installed to the length specified in the drawing. Use the locking compound from the kit to secure the studs in place.
16. Install the Weber carburetor with the throttle linkage facing the vehicle's **firewall.**
17. Install the throttle cable bracket from the kit, over the two driver's side carburetor mounting studs. (FIG.D) Use the lockwashers and nuts supplied in the kit to secure the carburetor and bracket in place. **NOTE: DO NOT TIGHTEN THE CARBURETOR MOUNTING NUTS DOWN COMPLETELY AT THIS TIME.**
18. **'74 B210 ONLY: B110 PROCEED TO STEP #19**
Install the second EGR Valve gasket and EGR Valve on the adapter, use the two 8mm bolts and lockwashers supplied in the kit to secure the valve in place. **DO NOT USE GASKET SEALER ON THE EGR VALVE TO ADAPTER .**
19. Remove the two nuts securing the throttle cable jacket in the bracket at the firewall. Remove the cable jacket and rotate it 180 degrees. (Turn it upside down.) Reinstall the cable jacket in the firewall bracket and secure it in place using the stock nuts.

20. Install the throttle cable in the carburetor bracket as shown in FIG.D.

21. Connect the throttle cable to the carburetor lever.
CHECK THROTTLE OPERATION FOR FREE MOVEMENT. IF THERE IS ANY INDICATION OF STICKING OR BINDING, CORRECT AS NECESSARY BEFORE PROCEEDING.
NOTE: The throttle cable can be adjusted by loosening the set screw on the cable jacket collar and moving the cable the desired length. Once the cable is properly adjusted, tighten the set screw to secure it in place.

22. Tighten the carburetor mounting nuts down in a diagonal pattern. **CAUTION:** DO NOT OVER-TIGHTEN CARBURETOR MOUNTING NUTS. MAXIMUM TORQUE SHOULD NOT EXCEED 7 FT. LBS.

23. **ALL VEHICLES EXCEPT '70 1200(B110)**
Cut the shrink tubing from the kit into 4 equal lengths. Slide a piece of shrink tubing over each end of the red wire. (both items in kit) Connect the wire to the choke terminal and the stock bullet connector. (Originally connected to the stock choke unit.) Once the wire is connected, slide the shrink tubing over the terminals.

24. '70 1200 (B110) ONLY:

These vehicles are equipped with a manual choke. Use the 12" length of wire and connectors to obtain a 12 volt source for the Weber choke and idle cut-off solenoid.

25. Slide a piece of shrink tubing over each end of the **blue** wire (both items in kit). Connect the wire to the Weber idle cut-off solenoid and stock bullet connector. (Originally connected to the stock idle cut-off solenoid.) Once the wire is connected, slide the shrink tubing over the terminals.

26. Using a **NON-FLAMMABLE** heat source, heat the shrink tubing on all the connections made in steps #23-25 until a good seal is made.

27. Remove the plug from the stock fuel line and install the new fuel hose from the stock line to the Weber fuel inlet fitting. **NOTE: A NEW FILTER SHOULD BE INSTALLED AT THIS TIME.**

28. '70-73 DATSUN 1200 (B110)

Use the vacuum cap supplied to plug the vacuum port on the altitude corrector as shown in FIG.E. Reconnect the spark advance line to the port on the Weber carburetor. (FIG.F)

29. '74 B210 ONLY:

Use the vacuum cap supplied to plug the port on the altitude corrector as shown in FIG.E. Use the vacuum hose supplied in the kit to connect the distributor advance to the Vacuum Advance port on the Weber carburetor. Connect the EGR line to the Venturi Vacuum port on the Weber carburetor. (FIG.G)

30. Install the air filter adapter gasket on the Weber carburetor. Use the allen bolts provided to install the adapter to the carburetor.

31. Install the new air filter stud into the adapter. Secure the stud in place with the jam nut from the kit.

32. Reinstall the stock air filter assembly using the two oval spacers, bolts and washers supplied. (FIG.H)

33. Reconnect the battery and reinstall the gas cap.

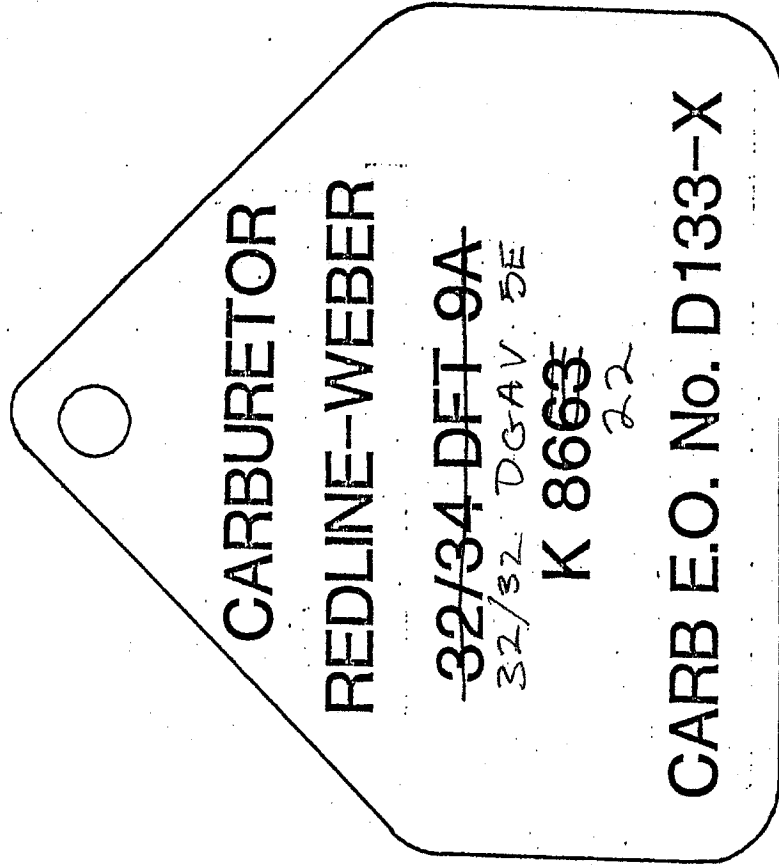
34. Start the engine and check for fuel and vacuum leaks. Correct as necessary **BEFORE** proceeding.

35. Adjust the idle speed, fast idle and idle mixture to factory specifications.

NOTE: Idle speed and idle mixture instructions are attached to the carburetor. Fast idle instructions are located at the end of these instructions.

36. Install the Weber vacuum diagram notification label next to the stock label under the hood.

36. CHECK FOR ADEQUATE HOOD
CLEARANCE BEFORE CLOSING THE
HOOD.



State of Development 1Date: 10/12/86Prototype # K8622-tLocation of # Pmp h549.Carburetor Model 32/32 D9EVSE Part # 18Application: Model B110/B210 Year 70-74 Month _____NA-Not Applicable
AF - As FactoryEngine Size 1.2 / 1.3 Air Cond. - Y NTransmission: MT AT

Calibrated Parts

Adjustments

Value

Calibrated Parts	Adjustments	Value
Main venturi <u>23/24</u>	Float levelling:	
Auxiliary venturi <u>3.5/4.5</u>	with gasket (brass)	mm
Main jet <u>120/115</u>	with gasket (plastic)	mm
Air corrector jet <u>160/120</u>	without gasket (brass)	<u>41</u> mm
Emulsion tube <u>F50/F50</u>	without gasket (plastic)	mm
Full power fuel bush	from face to carburetor bowl	mm
Full power air bush	Maximum float stroke	<u>52</u> mm
Power valve spring	P.n.	
Fuel enrichment bush <u>1.2</u>	Accelerating pump	
Air enrichment bush	10 complete pump strokes	
Mixture enrichment tube/hole <u>2.5</u>	delivery	<u>9.6</u> or <u>14.0</u> cm ³
Auxiliary venturi mixture enrichment bush	Throttle opening pump	
	stroke adjustment	mm

ibrated Parts, Con't.

Adjustments, Con't.

Value

Starter jet	—	Bimetal assembly	57804 333	P.n.
Starter air jet	—	Pull-down diaphragm spring	—	P.n.
Gasket kit	— 92 0152 05	Starter spring		P.n.
Tune up kit	92 - 1209 05	Starter spring		P.n.
Master repair kit	92 2312 05			P.n.

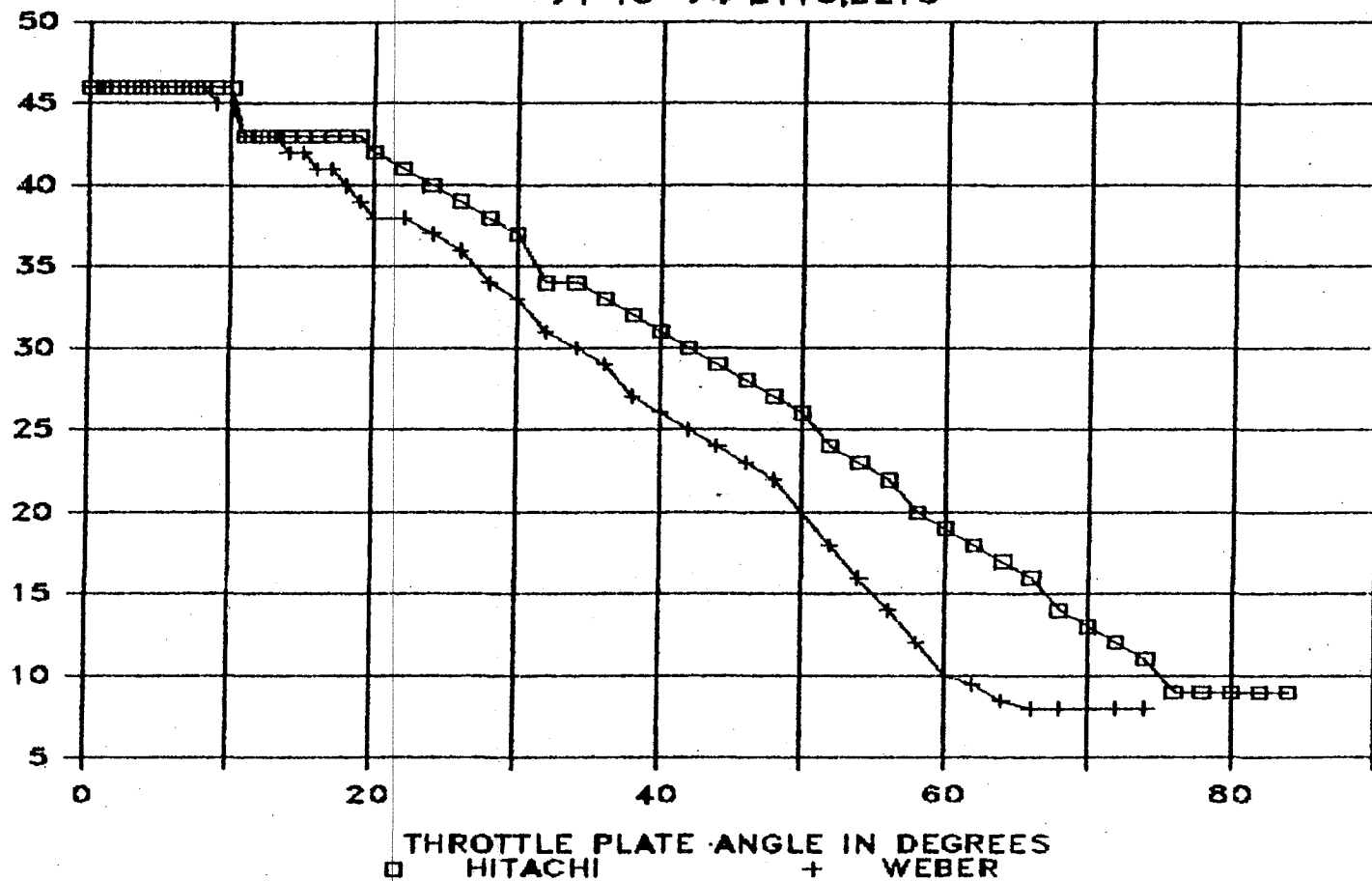
ADDITIONAL NOTES

FLOW BENCH DEPRESSION K8622

'71 TO '74 B110,B210

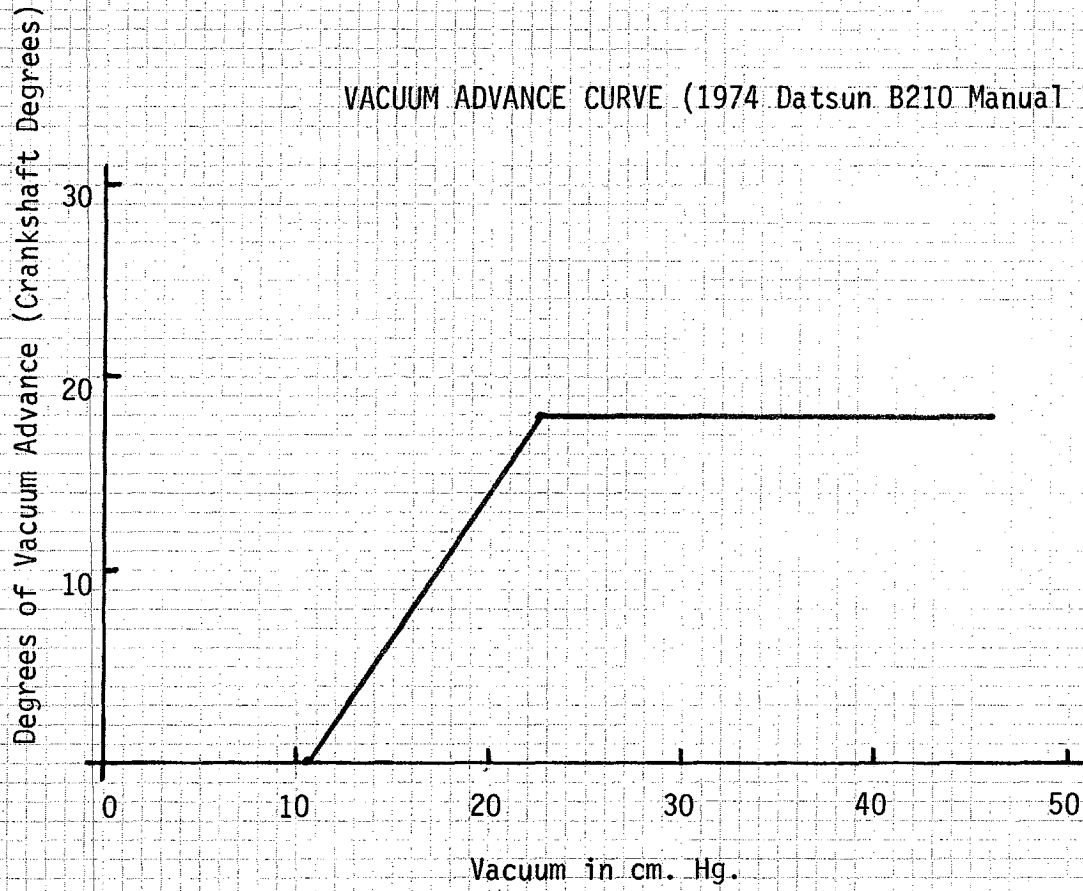
A-6

VACUUM IN CM Hg



GRAPH A-6.1

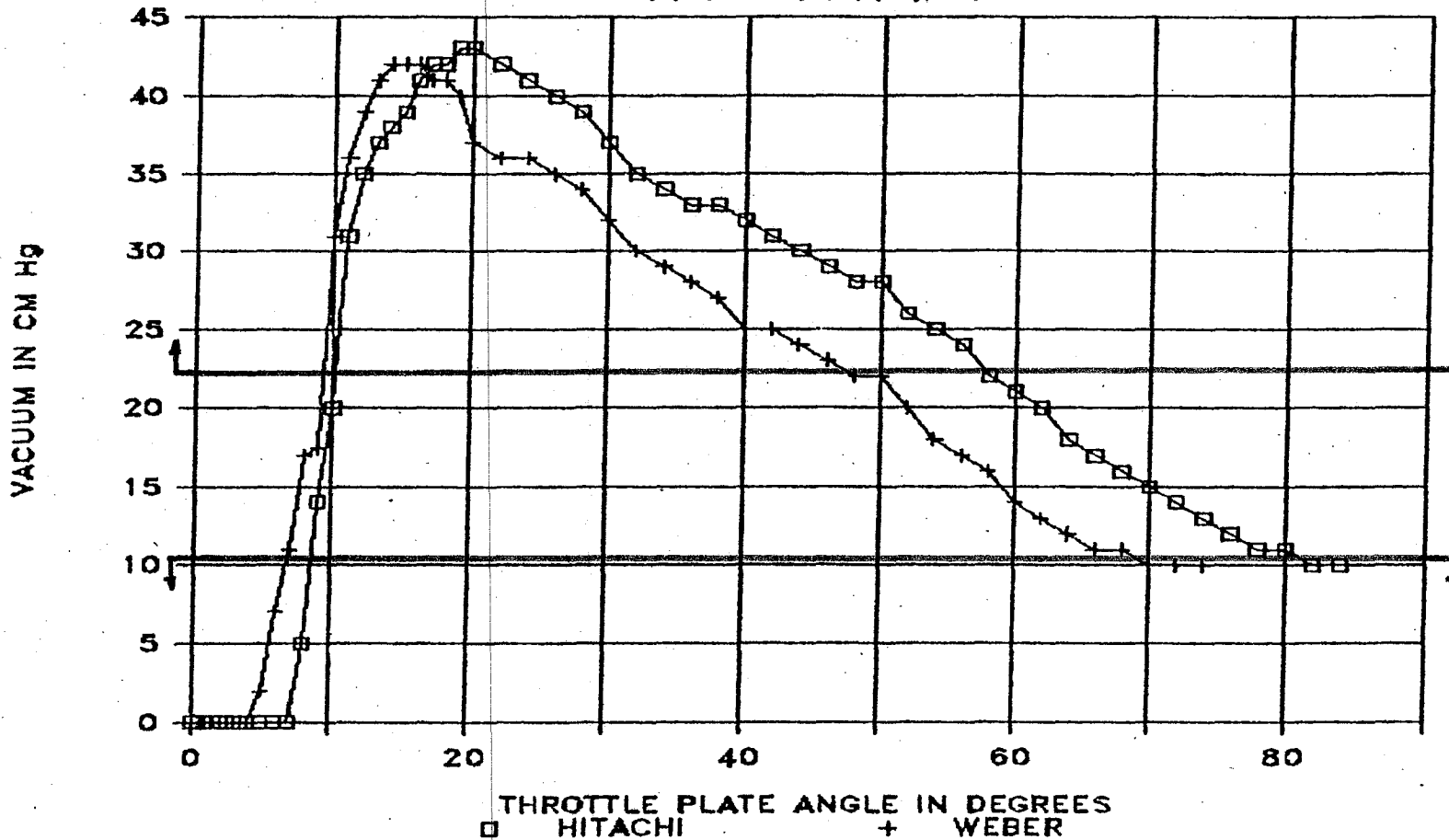
VACUUM ADVANCE CURVE (1974 Datsun B210 Manual Transmission)



GRAPH A-6.2

SPARK ADVANCE K8622

'71 to '74 B110, B210



At 22.5 cm. Hg. and above the vacuum advance unit will be held in the maximum advance position, which is 18° of vacuum spark advance.

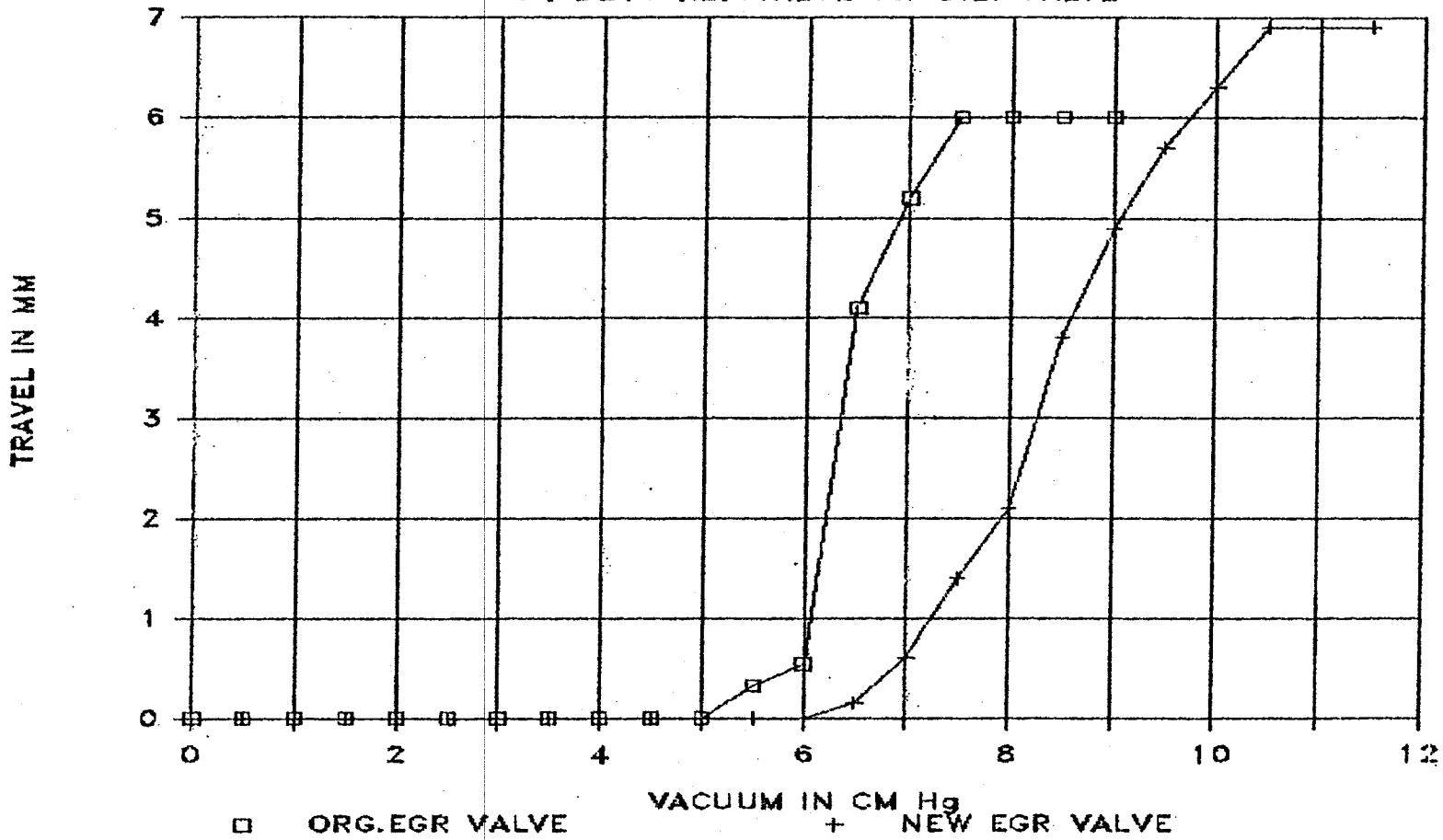
Between 10.5 and 22.5 cm. Hg. the vacuum advance unit will vary between 0° and 18° of vacuum spark advance.

At 10.5 cm. Hg. and below the vacuum advance unit will be inactive resulting in 0° of vacuum spark advance.

GRAPH A-6.3

EGR VALVE OPERATION B210

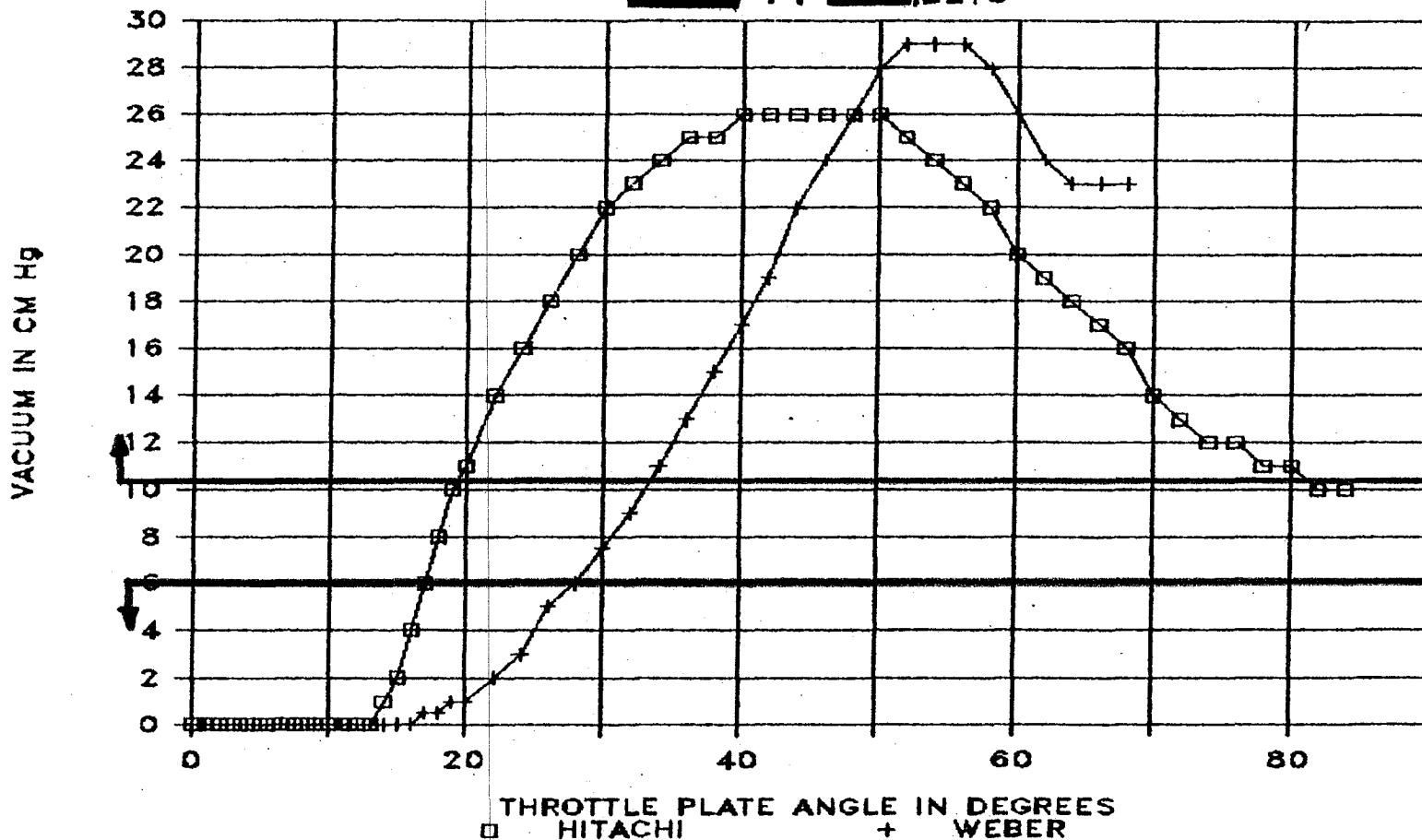
'74 B210 REP. VALVE vs. O.E. VALVE



GRAPH A-6.4

EGR VACUUM K8622

'74 B210



At 10.5 cm. Hg. and above the EGR valve will be held in its maximum open position

Between 6 and 10.5 cm. Hg. the EGR valve will vary between its fully closed and maximum open position.

At 6 cm. Hg. and below the EGR valve will be inactive and remain fully closed.

GRAPH A-6.5